



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,777	02/26/2008	Hiraku Ishikawa	101994.57726US	5716
23911 7590 04/21/2009 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
AHMED, SIAMIM				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
04/21/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/579,777

**Applicant(s)**

ISHIKAWA, HIRAKU

**Examiner**

Shamim Ahmed

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 1/12/09 have been fully considered but they are not persuasive. Applicant argues that Yuda fails to teach or suggest supplying oxygen gas from a lower side to the oxygen plasma 22 as to claim 1 and also does not teach the lateral side and a lower side to a central portion of a plasma generation region according to claim 11. Applicant also pointed out that Yuda discloses the oxygen gas is introduced into a high frequency wave applying electrode (1) in the CVD chamber and then supplying uniformly from the bottom of the electrode (1).
2. In response to the argument, examiner states that the argument is not persuasive because Yuda teaches the CVD apparatus is capable of supplying plasma forming gas (19) from a lower side and lateral side in relation to the high frequency wave supply unit or electrode (2) and also capable of supplying towards a central portion of the region (see figure 8 and also the rejection).

Examiner also noted that the high frequency wave applying electrode is 2 not 1 as applicant argues in the argument/remarks section.

Therefore, the previous office action is repeated herein as follows:

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyama et al (JP 10-022279) in view of Yuda et al (6,663,715).

Fukuyama et al disclose a CVD apparatus and process of forming film, wherein a substrate (20) is mounted on a mounting unit; a high frequency wave generator (8) and generating oxygen plasma and plasma generating gas such as oxygen is supplying from a lateral and lower side relative to the high frequency wave supply unit (paragraphs 0002-0005 and figures 1-2).

Fukuyama et al also disclose supplying source gas injector (21) for supplying film forming gas into a region on the mounting unit and the electrode (51) having opening to allow plasma to pass the region onto the mounting region that plasma is generated by the high frequency wave generator (paragraph 0024).

Fukuyama et al remain silent regarding the source gas injector having the opening to pass through the plasma generated in between the high frequency generator and the electrode (51).

However, Yuda et al teaches supplying source gas (film forming gas, 19) and plasma confining electrode (5) having opening in a single body and the oxygen radical (21) from the oxygen plasma passes through hole or opening 13 to react with the source gas to form a film on the substrate, wherein the confining electrode unit (5) partitioning the CVD chamber into two such as plasma confining area, which resemble as the claimed high frequency wave supply side and substrate mounting unit side (col.7, lines 61-col.8, lines 1-20 and figures 8,9) and aforesaid teaching reads on the claimed

limitation of "supplying the supplying the plasma exciting gas at the lower side and lateral side into a central region of the plasma generation region".

Yuda et al also teach that the holes are provided in such that the gas distribution in a uniform surface density (col.7, lines 11-17).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to employ Yuda et al's teaching into Fukuyama et al's process for uniformly distribution of the radicals as taught by Yuda et al.

So, the modified apparatus is capable of supplying the plasma exciting gas at the lower side and lateral side into a central region as claimed.

As to claims 2 and 4, Yuda et al teach that a plurality of plasma excitation gas supply port are arranged in the apparatus (see figure 8-9) and therefore, the apparatus is capable of to supplying another plasma excitation gas.

As to claims 7-8, Fukuyama et al teach that the plasma exciting or generating gas oxygen supply port is arranged in the upper surface of the modified source gas supply port along with the plasma confining electrode (5) with holes to passes plasma through it.

As to claim 10, Fukuyama et al teach the oxygen gas supply through a gas flow control unit, which resemble as the sensor for detecting the gas concentration (see paragraph 0003).

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on Tu-Fri (6:00-2:30) Every Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shamim Ahmed  
Primary Examiner  
Art Unit 1792

SA  
April 20, 2009

/Shamim Ahmed/  
Primary Examiner, Art Unit 1792